Remarks

The Office Action mailed April 17, 2002, has been carefully reviewed. Submitted herewith, in Appendix A, is a Submission of Marked Up Claims, in accordance with 37 C.F.R. § 1.121

Claims 1-20 are now pending in this application. Claims 1-20 stand rejected. Claims 2. 5, 6, 14 and 15 have been cancelled.

Applicants note the objections to the drawings under 37 C.F.R 1.83(a). The objection to the drawings is respectfully traversed.

With respect to showing "a double insulated rotor and stator", independent Claim 1 recites, "a double insulated rotor and stator assembly". Applicants respectfully submit this feature is clearly shown in Figure 7, and distinctly described in paragraphs 21 and 39 through 41, as submitted at the filing of the application. Paragraph 21 clearly recites that Figure 7 is an exploded view of a stator and rotor assembly. Additionally, paragraphs 39 through 41, combined with Figure 7, distinctly describe and show a stator stack 30 and a rotor stack 58, which one of ordinary skill in the art would recognize as a rotor and stator assembly. Furthermore, Figure 7 clearly shows dashed lines indicating that rotor stack 58 is to be positioned within stator stack 30, thereby forming a rotor and stator assembly. Further yet, paragraphs 39 through 41, combined with Figure 7 distinctly describe and show a first layer of insulation comprising insulation tube 54 and a second layer of insulation comprising first insulating strips 122 and second insulating strips 128. Therefore, "a double insulated rotor and stator assembly" is clearly shown in Figure 7, in accordance with 37 C.F.R 1.83(a).

For the reasons set forth above, Applicants request that the 37 C.F.R 1.83(a) objection to the drawings be withdrawn.

The rejection of Claims 1, 3-4 and 7-9 under 35 U.S.C. §112, first paragraph, is respectfully traversed. Claims 2, 5 and 6 have been cancelled

Applicants respectfully submit that, in accordance with the argument set forth above, Claim 1 recites, "a double insulated rotor and stator assembly" that is distinctly described in paragraphs 21 and 39 through 41. Specifically, paragraph 21 clearly recites that Figure 7 is an exploded view of a stator and rotor assembly. Paragraph 39 recites that one layer of insulation comprises insulation tube 54 between shaft 50 and rotor lamination stack 58. Paragraph 40 recites another layer of insulation comprising the plurality of first insulating strips 122 and the plurality of insulating strips 128, the combination of which provide a complete electrical barrier between winding 126 and stator stack 30. Paragraph 41 recites that insulating tube 54 disposed between shaft 50 and rotor stack 58, and the combination of first insulating strips 122 and second insulating strips 128 disposed between stator stack 30 and windings 126, provide a double insulation barrier against possible electrical shock. Thus, a double insulated rotor and stator assembly is described in the specification in such full, clear, concise and exact terms as to enable any person skilled in the art to make and/or use the invention.

Accordingly, Applicants submit that Claim 1 is patentable in accordance with 35 U.S.C. §112, first paragraph. Claims 3-4 and 7-9 depend, directly or indirectly, from Claim 1. When the recitations of Claims 3-4 and 7-9 are considered in combination with the recitations of Claim, Applicants submit that Claims 3-4 and 7-9 are likewise patentable in accordance with 35 U.S.C. §112, first paragraph.

For the reasons set forth above, Applicants request that the rejection of Claims 1, 3-4 and 7-9 under 35 U.S.C. §112, first paragraph, be withdrawn.

The rejection of Claims 1, 3-4 and 7-9 under 35 U.S.C. §112, second paragraph, is respectfully traversed. Claims 2, 5 and 6 have been cancelled.

With respect to the Examiner's position that "an implement of a motor driven product" is indefinite and vague, Claim 1 has been amended to recite, "a bearing end cap coupled to said motor housing adapted to couple said motor to a motor driven product". Additionally, with respect to the Examiner's position that "a double insulated rotor and stator assembly" is not clear, Applicants respectfully submit that, in accordance with the argument set forth above, Claim 1 particularly points out and distinctly claims a double insulated rotor and stator assembly that is clearly described in paragraphs 21 and 39 through 41. Accordingly, Applicants submit that Claim 1 is patentable in accordance with 35 U.S.C. §112, second paragraph.

Claims 3-4 and 7-9 depend from Claim 1. When the recitations of Claims 3-4 and7-9 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 3-4 and 7-9 are likewise patentable in accordance with 35 U.S.C. §112, second paragraph.

Rejection Under 35 U.S.C. § 103

Claims 1-20 were rejected under 35 U.S.C § 103 as being unpatentable over Gschwender et. al. in view of Prindle and Van Dine et. al.. This rejection is respectfully traversed.

Gschwender et. al. describes an explosion-proof motor having a metallic, pressure-tight housing that is electrically insulated on the outside with a plastic shell 28. The motor has a rotor 17 and a rotor shaft 9, that is rotatably supported in two bearings 8 and 10. The rotor 17 is surrounded by a stator 26 that is fixedly accommodated in the middle part 1' of the housing.

Prindle describes an electrical motor having the windings insulated from the stator coils. The stator coils 10 are insulated from the stator 3 by disposing an insulating material 11 between the stator 3 and the stator coils 10. The exciter coils 12 are insulated from the stator coils 10 by insulating material 13 interposed therebetween. To insulate the exposed surfaces of the exciter coils 12 there is provided insulation 14.

Van Dine et. al. describes an electric motor shaft 1 that includes a tubular shaft body section 7 formed of composite material and a metallic shaft end fitting 3 affixed at joint 5 to one end of the tubular composite body 7. The tubular composite body is molded of high strength, high modulus fibers such as fiberglass, graphite, carbon, boron quartz and aramyde fiber. An array of ribs 9 for supporting a rotor can be bonded to the shaft using a suitable epoxy or other adhesive.

As amended, Claim 1 recites, "An electronically commutated brushless motor comprising: a motor housing; a bearing end cap coupled to said motor housing adapted to couple said motor to a motor driven product; and a double insulated rotor and stator assembly annularly fitted in said housing, said double insulated rotor and stator assembly comprising a rotor assembly, wherein said rotor assembly comprises: a shaft configured to deliver torque to said motor driven product; a rotor stack coupled to said shaft; and a non-conductive electrically insulating tube disposed on said shaft between said shaft and said rotor stack, thereby providing a first layer of electrical insulation."

Neither Gschwender et. al., Prindle, nor Van Dine et. al. describe or suggest a double insulated rotor and stator assembly comprising a rotor assembly having a non-conductive electrically insulating tube disposed on a shaft between the shaft and a rotor stack, thereby providing a first layer of electrical insulation. Rather, Gschwender el. al. describes an explosion-proof motor having a metallic, pressure-tight housing that is electrically insulated on the outside with a plastic shell, and Prindle describes an electrical motor having the stator coils insulated from the stator. Van Dine et. al.

describes a rotor shaft constructed of a composite shaft body having metallic end fittings affixed to the composite body. There is no description or suggestion in Gschwender et. al., Prindle or Van Dine et. al. of a rotor assembly that provides a layer of electrical insulation by disposing a non-conductive electrically insulating tube on the rotor shaft between the shaft and the rotor stack.

Additionally, applicants respectfully submit that is would not have been obvious to modify Gschwender et. al. in view of Prindle and Van Dine et. al. to obtain the claimed double insulated rotor and stator assembly having a rotor assembly that comprises a non-conductive electrically insulating tube disposed on a rotor shaft between the shaft and a rotor stack. There is no description or suggestion in Gschwender et. al. of forming a double insulated rotor and stator assembly. More specifically, Gschwender et. al. is absent any description directed toward electrically insulating various components such as a rotor, a stator, or rotor and stator assembly to achieve double insulation. Prindle only describes an electrically insulting feature directed toward a stator assembly and is absent any description of a double insulated rotor and stator assembly. Van Dine et. al. only describes a rotor shaft comprising a composite body section and is also absent any description of a double insulated rotor and stator assembly. Additionally, as shown above, neither Gschwender et. al., Prindle, nor Van Dine et. al. describe a stator assembly having an electrically non-conductive insulating tube disposed on a rotor shaft between the shaft and a rotor stack.

Furthermore, in addition to the lack of description of a double insulated rotor and stator assembly having a rotor assembly comprising a insulating tube disposed on a rotor shaft, there is no suggestion in Gschwender et. al., Prindle, or Van Dine et. al. to combine the features described in each respective piece of cited art with other known features in the art to obtain a double insulated rotor and stator assembly. Even further there is not suggestion in Gschwender et. al., Prindle, or Van Dine et. al. to combine the

features described in each respective piece of cited art with other known features in the art to obtain a double insulated rotor and stator assembly comprising a rotor assembly having an insulating tube disposed on a rotor shaft between the shaft and a rotor stack.

Therefore, it would not have been an obvious matter of design choice to simply take each of the isolated teachings of Gschwender et. al., Prindle, or Van Dine et. al., where there is no suggestion to combine the teaching of these references, to construct a double insulated rotor and stator assembly comprising a rotor assembly having an insulating tube disposed on a rotor shaft between the shaft and a rotor stack. Obviousness cannot be established by merely suggesting that it would be obvious to one of ordinary skill in the art to have selected an alternative design choice. Additionally, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In this instance it appears that Applicants' own disclosure has been used as a "roadmap" in piecemealing together the teachings of these references, where the references do not suggest the desirability or motivation of combining the references.

For the reasons set forth above, Claim 1 is submitted to be patentable over Gschwender et. al. in view of Prindle and Van Dine et. al. Claims 3-4 and 7-9 depend, either directly or indirectly, from Claim 1. When the recitations of Claims 3-4 and 7-9 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 3-4 and 7-9 are likewise patentable over Gschwender et. al. in view of Prindle and Van Dine et. al.

As amended, Claim 10 recites, "A method for providing protection against electrical shock when a user comes into contact with accessible metal of a motor driven product coupled to an electronically commutated brushless motor, the motor including a motor housing, a rotor assembly and a stator assembly annularly fitted in the housing,

said method comprising: providing a first layer of insulation in the stator assembly; and providing a second layer of insulation in the rotor assembly, wherein the second layer of insulation includes a non-conductive electrically insulating tube disposed on a rotor shaft between the shaft and a rotor stack."

In accordance with the remarks set forth above, in reference to Claim 1, neither Gschwender et. al., Prindle, nor Van Dine et. al. describe or suggest a method for providing protection against electrical shock, wherein the method comprises providing a first layer of insulation in a stator assembly; and providing a second layer of insulation in a rotor assembly, wherein the second layer of insulation includes a non-conductive electrically insulating tube disposed on a rotor shaft between the shaft and a rotor stack.

For the reasons set forth above, Claim 10 is submitted to be patentable over Gschwender et. al. in view of Prindle and Van Dine et. al. Claims 11-13 and 16-18 depend, either directly or indirectly, from Claim10. When the recitations of Claims 11-13 and 16-18 are considered in combination with the recitations of Claim 10, Applicants submit that Claims 11-13 and 16-18 are likewise patentable over Gschwender et. al. in view of Prindle and Van Dine et. al.

As amended, Claim 19 recites, "An electronically commutated brushless motor configured to be coupled to a motor driven product, said motor comprising: a stator stack comprising a stack of steel laminations including a plurality of stator slots; a plurality of windings wound in said stator slots, said windings configured to generate a revolving magnetic field; a first layer of electrical insulation between current carrying components of said motor and accessible metal of said motor, said first layer comprising a non-conductive electrically insulating material disposed into said stator slots around said windings in said stator slots; a shaft configured to deliver torque to said motor driven product; a rotor stack comprising a stack of steel laminations

configured to rotate in said revolving magnetic field and thereby deliver torque to said shaft; and a second layer of electrical insulation between current carrying components of said motor and accessible metal of said motor, said second layer comprising a non-conductive electrically insulating tube disposed on said shaft between said shaft and said rotor stack."

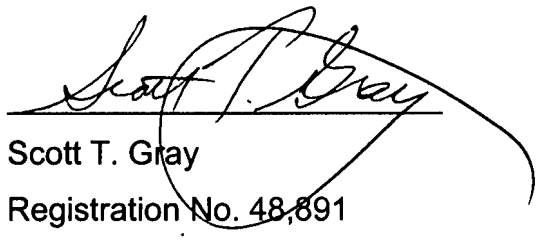
In accordance with the remarks set forth above, in reference to Claim 1, neither Gschwender et. al., Prindle, nor Van Dine et. al. describe or suggest a second layer of electrical insulation between current carrying components of a motor and accessible metal of the motor, wherein the second layer comprises a non-conductive electrically insulating tube disposed on a rotor shaft between the shaft and the rotor stack.

For the reasons set forth above, Claim 19 is submitted to be patentable over Gschwender et. al. in view of Prindle and Van Dine et. al. Claim 20 depends directly from Claim 19. When the recitations of Claim 20 are considered in combination with the recitations of Claim 19, Applicants submit that Claim 20 is likewise patentable over Gschwender et. al. in view of Prindle and Van Dine et. al.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1, 3-4, 7-9, 10-13 and 16-20 be withdrawn. Claims 2, 5, 6, 14 and 15 have been cancelled.

In view of the foregoing amendments and remarks, all the claims now pending in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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